

What is claimed is:

1. A method for transferring data on a bus system in which both isochronous communication and asynchronous communication are employed; said isochronous communication is for any device on the bus to receive synchronous data; said asynchronous communication is for a predetermined device to receive asynchronous data; said synchronous data may contain actual data; said synchronous data also contains encryption identification information at an area other than said actual data; said encryption identification information indicates the status of encryption of said actual data; and encrypted actual data is decrypted using decrypting information obtained through the following steps:

a) a receiving device receiving said synchronous data makes a request for decrypting information of said actual data to a sending device sending said synchronous data via said asynchronous communication, if said encryption identification information indicates that said actual data is encrypted;

b) said sending device receiving said request sends one of:

i) encrypted decrypting information of said actual data; and

ii) data required for obtaining said decrypting information

to said receiving device via said asynchronous communication; and

c) said receiving device executes one of:

i) taking out said decrypting information from said encrypted decrypting information when said receiving device receives said encrypted decrypting information; and

ii) obtaining said decrypting information using said data for obtaining said decrypting information when said receiving device receives said data for obtaining decrypting information.

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iii) obtaining said decrypting information in accordance with said selected procedure.

3. The method for transferring data as defined in Claim 2, wherein said procedure is selected in accordance with a predetermined priority when there are a plurality of procedures executable by both of said sending device and said receiving device.

i) starting said procedure selected from said plurality of types of procedures in accordance with a predetermined priority;

[illegible]

8 ii) re-selecting one of said procedures until said procedure executable by
9 said sending device is found when the procedure selected by said receiving device is not
10 executable by said sending device; and

11 iii) obtaining said decrypting information in accordance with the selected
12 procedure when a procedure executable by said sending device is found.

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1 5. The method for transferring data as defined in one of Claims 2 to 4,
2 wherein said asynchronous data transmitted between said sending device and said
3 receiving device in accordance with said selected procedure contains an identifier for
4 indicating the type of said procedure executed.

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1 6. The method for transferring data as defined in one of Claims 1 to 5,
2 wherein said receiving device authenticates whether said sending device is an authorized
3 sending device before making a request for said decrypting information.

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1 7. The method for transferring data as defined in one of Claims 1 to 5,
2 wherein said sending device receiving a request for said decrypting information
3 authenticates that said receiving device is an authorized receiving device before sending
4 encrypted decrypting information of said actual data after confirming.

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1 8. The method for transferring data as defined in one of Claims 1 to 5, said
2 sending device and said receiving device mutually authenticate that both are authorized
3 sending device and receiving device before said receiving device makes a request for said
4 decrypting information.

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1 9. The method for transferring data as defined in one of Claims 1 to 8,
2 wherein the next steps are executed before said receiving device makes a request for said
3 decrypting information:

4 i) said receiving device sends information required by said sending device at
5 least for creating a common key to said sending device; and

6 ii) said sending device sends information required by said receiving device
7 at least for creating said common key to said receiving device;

8 and then said sending device encrypts decrypting information using said
9 common key and sends said encrypted decrypting information; and said receiving device
10 takes out said decrypting information from said encrypted decrypting information
11 received using said common key.

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1 10. The method for transferring data as defined in one of Claims 1 to 5,
2 wherein only said actual data is encrypted.

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1 11. The method for transferring data as defined in one of Claims 1 to 5,
2 wherein said sending device has a signal source of said actual data inside and determines
3 encryption of each of said actual data in a fixed length unit output from said signal source;
4 and said sending device places encrypted actual data and non-encrypted actual data in
5 different output units of said synchronous communication, and then outputs them to said
6 bus system.

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1 12. The method for transferring data as defined in Claim 11, wherein said
2 receiving device specifies a percentage of said encrypted actual data and said non-
3 encrypted actual data to said sending device using said asynchronous communication; and

4 said sending device changes the percentage of encryption in accordance with said
5 specification.

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1 13. The method for transferring data as defined in one of Claims 1 to 5,
2 wherein said sending device has a signal source of said actual data inside, and determines
3 a percentage of encryption of said actual data in a fixed length unit output from said
4 signal source; and said sending device places said actual data in an output unit of said
5 synchronous communication, and then outputs it to said bus system.

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1 14. The method for transferring data as defined in Claim 13, wherein said
2 receiving device specifies a percentage of said encryption to said sending device using
3 said asynchronous communication, and said sending device changes the percentage of
4 encryption in accordance with said specification.

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1 15. The method for transferring data as defined in one of Claims 1 to 5,
2 wherein said sending device sends said synchronous data excluding said actual data until
3 at least said decrypting information is requested; and said sending device starts sending
4 synchronous data containing said actual data only after at least receiving said request for
5 said decrypting information.

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